

Technology for

Alaskan Transportation

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Transfer Program

IN THIS ISSUE . . .

A New Member's Perspective

Bare Bones Budget

Crack Sealing

FHWA Publication

Cars to Lobsters

Low Volume Roads Manual

Accident Robots

4R Conference & Road Show

INSERTS . . .

Crumb Rubber Pavement

Computers and Productivity

Safety

Retractable Studded Tires

New Pubs/Vids List

CALENDAR OF EVENTS . . .

Who's Who in Transportation

"Improving Alaska's quality of transportation through innovative technology and information exchange."



This newsletter is funded by a grant from the Federal Highway Administration and the Alaska Department of Transportation and Public Facilities.

A New Member's Perspective

by Jonathan A. Widdis, Advisory Board Chair

With the departure of John Martin for other opportunities in Seattle, I recently inherited the chairmanship of the Advisory Board for the Technology Transfer Program. John and I have worked closely together for a number of years, but I had not been directly involved in T2 before now. I have been pleasantly surprised to discover what a well-managed and worthwhile program this is. I think we can all be very proud of the accomplishments of Alaska's T2 Center in bringing the needed training and information to Alaska's transportation workers under the able leadership of Director Sharon McLeod Everette.

At the May board meeting my initial impression was what a high caliber Advisory Board we have with

good representation from around the state. In 1992 we expanded to include an urban focus to our transportation technical assistance. This will continue.

More exciting expansion is coming in 1993! The Bureau of Indian Affairs brought all the rural communities of Alaska together at a national transportation meeting in Anchorage recently. The BIA's Roads Program for rural Alaska is set to increase to more than \$12 million annually. This means more local roadwork and considerable technical assistance is called for. In fact, four national Technology Transfer Centers for American Indians have

(continued on page 4)

Working With a Bare Bones Budget

It's no secret that budgets are tight and that local spending may be forced to handle a larger load in the future. Local officials today face two great challenges:

How do you invest scarce local road dollars most efficiently?

How do you gain public support for important projects that are not as visible as potholes, failed pavements, etc.?

Below are some ideas gathered from around the country:

Plan

Develop and use a road inventory and management plan. Knowing in detail the condition of your roads, and how and where they are deteriorating, helps you make better

decisions. A written condition inventory is the starting point for good decisions. Make budget estimates and a priority list part of the plan.

Build quality

Whatever projects you undertake, do them right. Build quality and long life into each project. It may be better to do half of your projects and do them right. A long service life always has much better payback than cheap projects that only last a short time.

Correct & improve drainage

Get water away from road surfaces and pavements as soon as possible.

(continued on page 3)

Crack Sealing

Crack sealing is a routine maintenance activity involving cleaning and then filling cracks with an asphaltic crack sealing compound to keep water from entering the subgrade. It should be used on cracks that have opened more than 1/4 to 1/2, inch since smaller cracks can be repaired more efficiently by skin patching with a liquid asphalt and stone surface treatment. But not all cracks are suitable for sealing. The following are a few examples that are suitable:

Block/Transverse: This type is generally not load-related even though some longitudinal cracks may occur in the wheel paths. It consists of transverse, longitudinal, or a combination of both types of cracks which form a block pattern which is usually uniform across the entire roadway.

Reflective Cracking: Reflective cracks are single cracks that are usually transverse, but occasionally

are longitudinal if the underlying material is narrower than the asphaltic concrete overlay.

Widening Joint: Usually a crack forms along the joint between the original pavement and the widening strip.

Recommended Crew Size:

Laborers-2; Flagmen-2; Truck Driver-1

Equipment:

Asphalt Distributor
Air Compressor or Hot Air Lance
Wand or Pourpot
Squeegee (optional)

Procedure:

The nature of cost-effective crack repair precludes using reinforcement devices. Some fabrics have been used unsuccessfully on an experimental basis to reinforce the asphalt pavement.

1. **Traffic Control:** Set up signs and traffic devices.

2. **Rout Crack:** Either mechanical or hand routing may be necessary to remove old deteriorated crack filler from previous sealing operations.

3. **Clean Cracks:** The crack should be thoroughly cleaned with a stiff bristle broom and compressed air. A sharp pick or other tool may also be necessary to remove weeds and other debris. When using compressed air, the base should not be connected to an air port with automatic oiling.

4. **Fill Cracks:** Cracks should be filled to approximately 1/4 inch below the pavement surface. This eliminates the need for blotting the finished crack with sand. Many municipalities fill cracks flush with the surface, squeegee excess material, and then blot with sand.

5. **Clean up:** After allowing the material to cool, traffic control devices and signs can be removed.

From the "Georgia Roads" Technology Transfer Center newsletter, Vol.2, No. 1 and adapted for Alaska. ♦

News & Views

We welcome corrections, comments, disagreements. We take complaints. We love praise. We'll edit for the sake of brevity only.

We like to hear from suppliers, vendors, manufacturers. We'll publish the information they provide in brief. This does not, of course, represent endorsement in any way!

FHWA Publication



Last year the Federal Highway Administration conducted a search for innovative procedures used by state and local agencies in sign fabrication, installation and maintenance. The result is a 61 page handbook entitled *Sign Fabrication,*

Installation, and Maintenance, Innovative Practices and is available through the National Technical Information Service, Springfield, VA 22161.

Topics covered range from very simple, but effective tools, to more elaborate sign trucks, and include tips on a paper-letter reverse-screen process, a rigid-mount street name sign assembly, and how to make an all-purpose sign truck. ♦

Cars to Lobsters

Dumped cars are being converted into lobster beds by an island community in Japan stuck with a mountain of scrap iron. The cost of disposal was becoming a burden for Koizu Island, south of Tokyo because of the falling value of scrap. The local council asked marine environment authority Makato Ishino for suggestions on what to do with the 400 plus cars abandoned each year.

Professor Ishino, a fisheries expert, came up with the idea of encas-

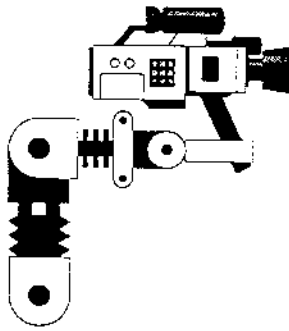
ing the cars in concrete and lowering them to the ocean floor surrounding the island. Ishino makes the point that metal attracts seaweed and the interiors of the cars can be turned into excellent breeding grounds for lobsters. If the lobsters take to the cars, Koizu Island plans to sell the process to other communities.

From the Virginia Transportation T2 Center newsletter, "Virginia" Ecclectic, April 1993. ♦

Low Volume Roads Manual

The Alaska T2 Program now has copies available of the American Society of Civil Engineers' publication, *Local Low Volume Roads and Streets*. This reference book is designed to provide local agencies with basic information concerning planning, construction and maintenance, traffic and safety design, surface management, and geometric design considerations. Appendices contain addresses of those who attended the Low Volume Roads Workshop in March 1992, metric conversions, and the addresses of LTAP Technology Transfer Centers nationwide. The Alaska T2 Program has about 100 copies of this publication to give away on a first come, first served basis. There are also copies available for loan. For more information, contact Susan Earp at (907) 451-5320. ♦

Accident Robots



The Japanese public highway authority has developed an "accident detection robot" that can alert police and emergency crews to an expressway accident within two seconds. Reportedly the first of its kind, the robot is designed to alert rescue teams to accidents near sharp curves and accident prone "black spots" where visibility is poor. The Hanshin Expressway Corporation says the robot will be ready for use on its tollways by 1993.

Hanshin says it developed the robot's ability to identify accidents by using four cameras installed at a troublesome spot on an expressway for a month videotaping the thousands of vehicles that passed. During analysis of the videotapes, Hanshin researchers detected patterns in sudden directional changes, interrupted speed and momentary disorientation in vehicle movement that they were able to teach a computer to recognize. By linking the system with cameras and television monitors, accident "replays" can be produced that start four seconds before a recorded accident. By tracking each vehicle's movement, police will be assisted in pinpointing accident causes. The system is expected to reduce chain reaction accidents and enable ambulance crews and tow trucks to gauge the scale of an accident before they arrive on the scene. Clean-ups will be quicker and traffic jams will also be reduced. In the four month test run that ended [in 1991], the robot spotted a total of 36 incidents, including 20 collisions, six sudden stops and five instances where vehicles spun out of control.

From the "Technical Quarterly," TQ8-1 March 1993. ♦

Working With a Bare Bones Budget (continued from page 1)

Give drainage improvements priority over such routine maintenance upgrades as seal coating or overlays.

Protect the environment

Environmental protection is not just a matter of rules and regulations, but of common sense. All our projects should work to minimize erosion, protect wetlands and preserve resources with unique qualities. Where appropriate, we should integrate our transportation system to provide the most efficient transportation modes.

Include safety in all projects

Each normal roadway improvement project should consider what effective safety improvements are possible. In addition, local roadway budgets may also include special, separate safety projects. Upgrade signs, markings and guardrails when you improve the roadway surface.

Think before you pave

Don't pave gravel roads unless you are willing to accept the higher long-term cost of a paved surface. Higher-traffic roads may be better served with a paved surface, but this means that you can no longer maintain them with lower cost methods such as grading and graveling. Use a seal coat over a gravel surface only on low-volume roads and only

where existing base is properly prepared to carry traffic.

Provide adequate base

Roads need a base course to spread the pressure of vehicle tires so local soils can support traffic. How deep the base course needs to be depends on traffic loads and natural soil strength. Before surfacing an existing aggregate road, improve the base for adequate strength and drainage.

If you don't have enough experience locally to design the base course, invest in professional soil testing and pavement design. It is worth the money.

Be knowledgeable

Above all, know that what you do is the best you can do. Keep in touch with current practices, equipment and materials. Have an engineer handle tricky situations, and use common sense when making all your decisions.

Take advantage of those training opportunities provided by the Alaska Technology Transfer Center to broaden your skills and those of your staff. The Alaska T2 Center's number (451-5320) is provided for you to easily reach us. Make use of it. Never do anything out of ignorance.

From the Kentucky Transportation Center newsletter "The Link," March 1993, adapted for Alaska. ♦



7th Annual 4R Conference & Road Show

The Seventh Annual 4R Conference & Road Show will be held December 5-7, 1993, at the new Pennsylvania Center in Philadelphia, Pennsylvania. Twenty-two technical sessions and 10 Roundtable discussions will make up the three-day presentation sponsored by *Roads and Bridges Magazine* and the Equipment Manufacturers Institute.

Presentations will include practical maintenance and rehabilitation techniques for road and bridge sys-

tems. Systems management, computer applications, and legal issues as they apply to the road and bridge industry will also be featured.

Extra savings will be obtained if groups and individuals register before November 1, 1993.

For more information, contact the Registration Coordinator, Gillette Exposition Group, 380 E. Northwest Highway, Des Plaines, IL, 60016; phone (708) 298-6622; fax (708) 390-0408. ♦

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Gary Wilson, Federal Highway Administration

A New Member's Perspective (continued from page 1)

been created, but none of these are located in Alaska. Sensing Alaska's tremendous and immediate need for assistance, and especially our uniqueness, at the BIA gathering in Anchorage, Janet Coleman of FHWA's Washington, D.C. office pledged to provide an additional \$50,000 for technical assistance targeting Alaska's native communities in 1993. This program will probably be refined further, perhaps expanded, in future years.

We now have to quickly decide what assistance is needed and should be offered. T2 is not meant to duplicate other job training programs such as the Alaska Vocational Technical Center in Seward or the Alaska Technical Center in Kotzebue, where people learn to operate heavy equip-

ment, how to weld, etc. This is meant to teach different needed skills, such as perhaps how to manage construction activities or prioritize road planning needs.

Our Advisory Board will also need to expand to include more rural members. Any recommendations you have will be appreciated.

The most exciting thing of all this year is our own *Expo Alaska '93* scheduled for September 30 - October 2 in Fairbanks. I was delighted to hear what momentum this event is creating! It'll be the first time we've put the national manufacturers of heavy equipment and machinery and other transportation construction supplies together in one place in Alaska where we can all view the products and talk directly with the distributors. See you there! ♦

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by Dave Esch, Research Engineer,
Equipment and Operations Standards, DOT&PF Headquarters

The idea of adding ground rubber to asphalt pavements has been around since before 1900, when the first patent for the addition of rubber to pavements was issued. This idea, developed to improve elasticity and toughness of asphalt pavements, has not gained much national attention until recently, however.

The disposing of used tires has become an enormous, nationwide problem. Because most states do not allow dumping waste tires into landfills, the number of stockpiled junk tires in the United States now exceeds two billion by some es-



Waste tires: a 2 billion challenge.

timates. And, the number of junk tires is increasing annually at a rate of one per person.

The logical solution to this growing problem, according to Congress, is to offer incentives to highway agencies for grinding and using the tires in highway pavements.

The 1982 Surface Transportation Assistance Act, implemented to provide funding for highway construction, offered the removal of required state matching funds as an incentive to use crumbed tire rubber in paving mixes. This initial effort by Congress was a "carrot" for greater use of rubber in pavements, but the idea was unsuccessful.

Although states were not required to use their own money, the money available from the Federal government did not increase to make up the difference. And, because it is more expensive to use rubberized pavements than regular asphalt pavements, the "carrot" approach failed. Congress, however, did not give up. Nearly ten years later, a new highway funding act was set in motion.

In 1991, the Intermodal Surface Transportation Efficiency Act was passed and with it came a new incentive from Congress—a decrease in Federal funding for not using rubberized pavements.

Based on the EPA's guidelines for using waste tire rubber, ISTEA mandates that states must use enough waste tires to treat five percent (tonnage basis) of all FHWA funded pavements beginning in 1994. Additionally, rubber use in asphalt pavements must rise to 20 percent of all pavements by 1997.

Other waste tire-related provisions of ISTEA include a requirement that states must annually certify their compliance with the crumb rubber pavement mandate.

So how many tires must Alaska's highways and roads use to comply with ISTEA? Alaska's DOT&PF paving contractors place about 500,000 tons of pavement a year. At this rate, the ADOT&PF would have to blend about 1,000 tons per year of ground tire rubber into pavements by 1997. This is the equivalent of 150,000 scrap tires, or 25 percent of Alaska's estimated annual tire supply.

At this time, the closest U.S. rubber tire grinding operation to Alaska

is in Everett, Washington, but it is possible that a tire grinding operation will be sited in Alaska to consume local tires. Alaska's not having its own grinding operation has not stopped ADOT&PF from testing rubberized pavements, however.

ADOT&PF already has experience with one of the many rubber-modified pavements types. This experience includes 12 projects and over 30 lane-miles of pavement placed in the 1980s using the PlusRide™ process. This process is a pavement type that consists of two



Alaska's closest supplier is Washington.

and a half to three percent rubber that is sized between 3/8 inch and the number 80 sieve size.

From observations by ADOT&PF's former Statewide Research Section, this type of rubberized pavement (originally called Rubit by its Swedish creators) has provided several benefits. The first benefit is the ability of PlusRide™ pavement types to reduce icy-road stopping distances by 15 to 25 percent. The second benefit is that this pavement appears to be somewhat more resistant to studded tire wear. In fact, stud wear resistance was the first stated purpose in the American patent for Rubit.

The third benefit is a greatly reduced thermal cracking level. For example, when the PlusRide™ pavement type was used for repaving of the section of road between Canyon Creek and Shaw Creek in 1986, the PlusRide™ section had only one crack in the half-mile section length after two years of service, while 25 to 40 cracks would be seen on a normal pavement.

Installations of other types of PlusRide™ pavements have been less durable than desired, particularly under heavy truck turning movements, and have demonstrated the sensitive nature of these mixes to variations in rubber and asphalt content. No major trials have been done with other processes for modifying pavements with rubber.

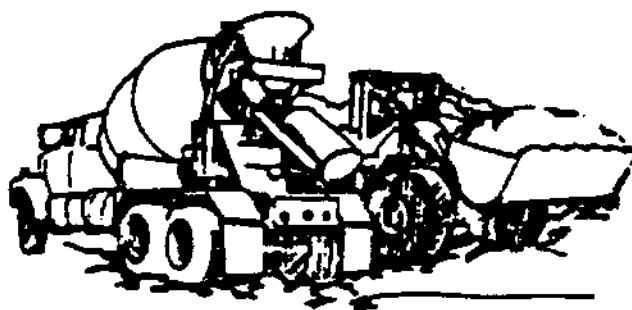
The only way Alaska, or any state, can avoid using tires in asphalt pavement would be to recycle all of the available waste tires in other beneficial ways. Acceptable alter-

native recycling uses for tires, however, have not been defined by the FHWA, and currently, very few of Alaska's tires are recycled. Juneau, for example, is the only city where recycling uses of tires could be found. Up to six waste tires per hour are used in the capital city as landfill incinerator fuel. This recycling method consumes possibly half of the area's waste tires, according to the landfill operator.

Other alternatives which might be considered include: drainage aggregate replacement for leach fields, lightweight backfill for foundations, retaining walls, swamp crossings, and insulating fill to prevent freezing of buried utilities

or frost heaving and thawing of permafrost beneath roads or airfields.

Currently, efforts are being made to promote in-state tire recycling and to identify alternative tire product uses. A research plan is also being prepared to sample and evaluate Alaska's existing rubber-modified pavements. Additionally, the plan would measure the rubber-modified pavement's benefits in increasing the fatigue life and wear resistance of pavements. ♦



Tire Tips



When radial grader tires can cost \$880 apiece and patrol truck tires go for \$220 each, it is easy to see why good tire maintenance is important.

The most important thing you can do is keep the tire properly inflated. Running on under-inflated tires reduces tread life, increases fuel consumption, and increases the chance of sidewall blowouts. It also damages the casings so tires can't be retreaded.

Check pressure regularly. The tire industry recommends checking inflation once a week on all tires.

Balance wheels, align front ends. Poor alignment or balance can cause excessive or uneven tread wear.

Pair tandem tires according to height.

Choose the right tire for the application. Compare the load range of the tire with what you anticipate the vehicle will carry. Look for thicker sidewalls where tires will be scraped on the side, as in off-road work or paving projects.

Consider converting to radial and tubeless tires. Radials provide three to four percent fuel savings, wear longer, are more retreadable and are more puncture resistant.

Use up quickly and store properly. Tires can deteriorate in storage. Keep away from light and heat, water and dirt. Store vertically, standing on the tread.

Reprinted from the Spring 1992 issue of the University of Wisconsin-Madison newsletter "Crossroads." ♦

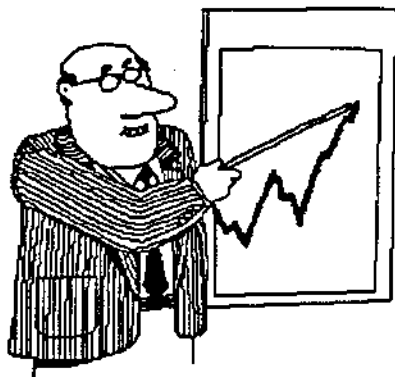
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Computers and Productivity

by Billy Connor

A month or so ago I watched a television program dealing with the impact of computers on the productivity in the corporate workplace. The narrator stated that while computers are commonplace, they have increased productivity by only 6%.



The narrator of the television program got right to the heart of the problem: the potential for improvements in productivity is certainly there, but people do not know how or when to use the computer to increase their productivity.

Even the best employee may waste time on the computer to do a better job. For example, a supervisor may ask an employee for an update on an issue. To improve the report, the employee may incorporate graphs and charts into the report. In the process, the employee may see a better way of reporting the data, for example, moving the title down, or experimenting with a different font. All of this takes more time than is really necessary. All the supervisor wanted was an update on an issue. A hand-written note would have met the supervisor's need, and taken much less time.

The point of this example is to show that employees have a tenden-

cy to seek perfection because the computer makes it easy to do. I don't know how many nights I have spent trying to perfect something by saying, "I'll try it just one more time."

The personal computer does have an important role to play in corporate society and government because both must manage and analyze large volumes of data. Computers allow this, but not as easily as many people believe. If a data base is to be useful, the user must be able to access the data and manipulate it easily. More importantly, the user must understand the data.

You may have heard the acronym DRIP: Data Rich, Information Poor. This applies to far too many of the data bases people have. Computers have made the storage of data almost trivial. Consequently, we tend to collect all the data we can think of at great expense without thought about who will use the information or how it will be used.



Before you invest in data and a data base, know how you're going to use the data. Determine how the data will be converted to information. Determine how accurately you need to collect data. For example, I recently worked with a group collecting data to two decimal places. After analyzing how the data were to be used, we found that a factor of two was close enough and saved about \$100,000 annually.

For another example, many years ago I was asked to determine the cost of maintaining roads in Alaska. When I started, I was overwhelmed by the number of activities that were tracked by the accounting system. Many of the activities appeared to be duplication. When I talked to the foreman, I found the meaning of the codes were interpreted differently. The lesson here is that additional detail does not always yield additional information, and it is information we want.

The above examples illustrate the need to train employees to use computers effectively. Train them when to use a computer and when to use the sticky note. Train them when to seek perfection and when simplicity is best. If typing skills are needed, provide training.

Train employees to carefully analyze the data they need. Make sure they can clearly define the data and how the data will be used before investing. If you're collecting data now, consider reviewing the collected data and determine if the use of the data warrants future collection. Don't leave that up to the computer specialists. If they knew your job, they would likely have it. ♦

Computers in the Engineer's Workplace

At the recent national ASCE convention, the involvement of computers in the engineering office was highlighted during two technical sessions. The desktop personal computer is replacing the main frame for most computer analysis, especially with the dramatic drop in price of 486 class computers. The reliability of desktop computers was reported to be somewhat inconsistent in analysis results. This was said to be more prevalent with 8088 and 286 class PCs, and much less so with 386 and 486 class PCs. Similar patterns for Apple class computers seemed to hold. Even the engineer's best friend, the spreadsheet, can be unreliable. So what's the problem with these modern tools of the trade?

The background of the software developers can be very important. Engineers familiar with the applications need to be closely involved in the development of program coding. Computer programmers applying formulas and mathematical principals, but who are not engineers, are producing some software programs without an understanding of what the output means. The user must ask questions before he purchases a package.

How do engineering department managers get a handle on the numerical results coming from the computer? Engineers must realize that erroneous results are easy to get; by just improperly entering data and not following the program's input code format. It is

also common for software programs to have code conflicts and errors that show up only for certain computation sequences. Frequently, code errors are left for the user to discover. Alternate checking of results should be mandatory at all levels of project design. Checking can be done by approximate hand methods, by changing computer hardware, and by running a different software program.



Of a more crucial aspect, a proper computer model has to be correctly set up. Engineers who create a model and its nodes or links, must understand how the model will behave and especially understand the failure modes. Formulas need to be run and reviewed for several conditions if a program is created in house, even for input data base conditions. Complicated formula routines in a common spreadsheet should be verified by calculator and hand checked. Intended limits of in-house programs should be clear to the user.

A growing concern shared by software developers, educators,

and engineering managers in our profession is the competence of the person performing the data input. Frequently, the data is input by an engineer who is right out of school and who has little engineering experience. This would appear to be good project economy, but only until output errors in the project's design appear. Managers must know what is happening and the implications of data input. There is no substitute for experienced model builders guiding the inexperienced computer operator. Understanding the behavior of a model and its failure modes are essential to proper use of the computer. This only comes from experience and knowledge in the application of engineering principals in the design project. Looking at the output and identifying obvious errors and inconsistent patterns is a mark of an experienced engineer.

Additionally, the young engineer is probably going to have to look out for himself to avoid becoming "trapped" behind the computer from project after project. The young engineer does not learn the profession and become a viable engineer this way. It is essential for managers to broaden the experience of young engineers, or they are really depriving the next generation of designers the essential tools to continue the profession.

Adapted by the NWT2 Center from an article in the Olympia-Tacoma Section ASCE Newsletter, December 1992. ♦

For More Information

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Place a check by the publications you wish to receive.

- ___ Americans for a DRUG-FREE AMERICA, ID-1009, American Crisis Publishing, Inc., 40pp.
- ___ Assessment of Advanced Technologies for Relieving Urban Traffic Congestion, ID-1003, TRB/NRC, NCHRP #340, December 1991, 97pp.
- ___ Construction In Cold Regions: A Guide for Planners, Engineers, Contractors and Manager, ID-982, 1991, 615pp.
- ___ Construction Innovations 1991, ID-1002, TRR No 1310, TRB/NRC, 125pp.
- ___ Cost-Effectiveness of Passing Lanes: Safety, Level of Service, and Cost Factors, ID-1008, Ontario Ministry of Transportation Research and Development Branch, TDS-91-02, September 1991, 149pp.
- ___ Durability of Special Coatings for Corrugated Steel Pipe, ID-994, USDOT/FHWA, FHWA-FLP-91-006, June 1991, 61pp.
- ___ Evaluation of New Nuclear Density Gauges on Asphalt Concrete, ID-995, USDOT/FHWA, FHWA-RD-90-092, September 1991, 126pp.
- ___ Future Aviation Activities: Seventh International Workshop, ID-992, Transportation Research Circular #390, TRB/NRC, February 1992, 63pp.
- ___ Handbook for the Identification of Alkali-Silica Reactivity In Highway Structures, ID-1000, SHRP, SHRP-C/FR-91-101, January 1991, 49pp.
- ___ Highway Research Abstracts, ID-991, TRB/NRC, Volume 24, Number 1, Spring 1991, 382pp.
- ___ I-10 Papago Freeway Environmental Mitigation Measures: 91st Avenue Maricopa Interchange, ID-986, USDOT/FHWA and Arizona DOT, December 1991, 25pp.
- ___ In Pursuit of Speed: New Options for Intercity Passenger Transport, ID-981, Special Report 233, TRB/NRC, 1991, 179pp.
- ___ Innovative Contracting Practices, ID-993, TRC #386, TRB/NRC, December 1991, 74pp.
- ___ Intermodal Surface Transportation Efficiency Act of 1991, ID-999, USDOT/FHWA, FHWA-PL-92-008, December 1991, 42pp.
- ___ ITE Journal, ID-1011, Volume 61, Number 4, April 1991, 62pp.
- ___ ITE Journal, ID-1012, Volume 60, Number 11, November 1990, 62pp.
- ___ More Effective De-icing with Less Salt: Final Report of the MINSALT-project Summary, ID-1001, VTI rapport, 369SA, 1991, 58pp.
- ___ Moisture Damage In Asphalt Concrete, ID-1005, TRB/NRC, NCHRP #175, October 1991, 90pp.
- ___ Public Transit Research: Rail, Bus, and New Technology, ID-990, Transportation Research Board #1308, TRB/NRC, 1991, 149pp.
- ___ Public Transportation: Marketing, Fare Policy and Rural Public Transportation -Research Problem Statements , ID-987, TRB/NRC, Transportation Research Circular, #369, April 1991, 11pp.
- ___ Roads To Serve The Nation - The Story of Road Development in the United States, ID-1010, USDOT/FHWA, FHWA-PL-89-024, December 1988, 37pp.
- ___ Rough Road Ahead: Alaska, As We Know It . . . Is About To Change, ID-984, AKDOT&PF, March 1992, 4pp brochure.
- ___ Selected Highway Statistics and Charts 1990, ID-1006, USDOT/FHWA, September 1991, 40pp.

Alaska Transportation Technology Transfer Program

Notes on Publications and Videos

- ____ **Service Life of Retroreflective Traffic Signs**, ID-996, USDOT/FHWA, FHWA-RD-90-101, October 1991, 107pp.
- ____ **Short-Term Responsive Maintenance Systems**, ID-1004, TRB/NRC, NCHRP #173, October 1991, 44pp.
- ____ **SHRP 1991 Annual Report**, ID-988, NRC, 32pp.
- ____ **Simulator Technology: Analysis of Applicability to Motor Vehicle Travel**, ID-985, Transportation Research Circular #388, TRB/NRC, February 1992, 80pp.
- ____ **TR News**, ID-983, TRB/NRC, Number 158, January - February 1992. Includes: Telecommuting in the U.S. and Considering the Pedestrian.
- ____ **TR News**, ID-1013, TRB/NRC, Number 156, September - October 1991. Includes: On The Road and National Cooperative Transit Research and Development Program.
- ____ **Traffic Accident Simulation Using Interactive Computer Graphics**, ID-989, LTRC, FHWA/LA-90-232, December 1991, 91pp.
- ____ **VTI Annual Report 1990/91**, ID-1007, Swedish Road and Traffic Research Institute, 34pp.

These publications may be borrowed for three weeks. However, if you need the materials longer, just contact our office for an extension. Questions? Contact Susan Earp at the Alaska Transportation Technology Transfer Program at (907) 451-5320.

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For back issues of our newsletter and inserts, or to get on our mailing list, write: Alaska Transportation Technology Transfer Program, Department of Transportation and Public Facilities, 2301 Peger Road, M/S 2552, Fairbanks, Alaska 99709-6394. For more information, you can also call (907) 451-5320.

Place a check by the videos you wish to borrow.

- ☐ D.O.T. Safer Roadside, ID-246, 17:22 mins., USDOT/FHWA.
- ☐ Finding Better Ways: New Research into Cost-Effective Pavement Repairs, ID-248, 19 mins., SHRP.
- ☐ Hydrated Lime: Key To Improved Asphalt Pavements, ID-250, 21 mins., National Lime Association.
- ☐ Loaders , ID-253, Talus Resources, 4 parts. Includes: Introduction, Maintenance, Safety, and Operating Techniques.
- ☐ Maintaining Asphalt Roads (Blade Patching), ID-251, 11:45 mins., LTAP.
- ☐ Modern Timber Bridges: A New Return for Old New England, ID-252, 15mins., Rhode Island Department of Administration.
- ☐ Pavement Maintenance and Worker Safety, ID-244, 16:07 mins., SHRP.
- ☐ Plows of the Future, ID-243, 8 mins., SHRP.
- ☐ Rodeo , ID-247, 8:22 mins., New Mexico State Highway and Transportation Department.
- ☐ Snow and Ice Control, ID-245, 12:41 mins., SHRP.
- ☐ Testing and Field Inspection of Roadway Delineation, ID-249, 35:43 mins., SHRP.

ADDITIONAL PUBLICATIONS AVAILABLE FOR LOAN

Place a check by the publications you wish to borrow.

- ☐ Amoco Construction Fabrics: Propex/Amopave Reference Manual Kit, ID-1026, Amoco Fabrics Company, Samples included. Includes: "A Design Primer: Geotextiles and Related Materials," 165pp; and "Basic Geotextile Design."
- ☐ Construction Productivity Advancement Research (CPAR) Program: Guidelines for Participation, ID-1034, U.S. Army Corps of Engineers, November 1991, 60pp.
- ☐ Data for Decisions: Requirements for National Transportation Policy Making, ID-1029, TRB/NRC, Special Report 234, 1992, 168pp.
- ☐ Effectiveness of Fog Seals and Rejuvenators for Bituminous Pavement Surfaces, ID-1040, Texas Transportation Institute, TTI: 2-18-87-1156-1F, April 1991, 101pp.
- ☐ Effects of the Quality of Traffic Signal Progression on Delay, ID-1031, TRB/NRC, NCHRP Report 339, September 1991, 100pp.
- ☐ Environmental Audit Workshop, ID-1027, 300pp. Instructors: Michael D. Travis, P.E. and Dr. Tim Tilsworth. T2 Program Workshop.
- ☐ Excellence in Storage 1992 Award, ID-1017, The Salt Institute, 4pp.
- ☐ Highway Deicing: Comparing Salt and Calcium Magnesium Acetate, ID-1028, TRB/NRC, Special Report 235, 1991, 170pp.
- ☐ ITE Journal, ID-1014, Volume 61, Number 2, February 1991, 62pp.
- ☐ Innovations Through Partnership, ID-1023, USDOT/FHWA, FHWA-SA-92-015, Office of Technology Applications, January 92, 8pp.

Alaskan Transportation Technology Transfer Program

Notes on Publications and Videos

- ____ **Metric Measures Up Information Kit**, ID-1025, U.S. Department of Commerce, Office of Metric Programs.
- ____ **Microfiche, Alaska State Library**, ID-1021, January 1992.
- ____ **Primer on Transportation, Productivity, and Economic Development**, ID-1032, TRB/NRC, NCHRP Report 342, September 1991, 111pp.
- ____ **Reaching Rural America With Innovative Technology**, ID-1024, RTAP, USDOT/FHWA, FHWA-SA-91-039, 10pp.
- ____ **Research Initiatives for Traffic Signal Control Systems**, ID-1030, TRB/NRC, Transportation Research Circular Number 380, October 1991, 15pp.
- ____ **Rock Salt Substitute Too Costly For Ice Removal On Most Roads**, ID-1019, news from the National Research Council, January 13, 1992, 4pp.
- ____ **Salt and Highway Deicing**, ID-1020, Volume 26, Number 2, Fall 1991, 4pp.
- ____ **Salt Institute News Release**, ID-1018, January 13, 1992, 3pp. National Academy of Sciences Report "Confirms Salt's Deicing Superiority."
- ____ **Selected Acquisitions January - February 1992**, ID-1036, State Transportation Library, Boston, 15pp.
- ____ **Sensible Salting Program**, ID-1016, The Salt Institute, September 1989, 1pp brochure.
- ____ **Subsurface Drainage of Pavement Structures: Current Corps of Engineers and Industry Practice**, ID-1037, CRREL Report 91-22, December 1991, 40pp.
- ____ **Tomorrow's Alaska: Transportation for the 21st Century**, ID-1015, DOT&PF, December 1991, 46pp.
- ____ **Urban Transportation Abstracts**, ID-1035, Volume 9 1990-91, UMTA, USDOT/FHWA, UMTA-DC-06-0651, July 1991, 353pp.
- ____ **Use of Scrap Rubber in Asphalt Pavement Surfaces**, ID-1039, CRREL Special Report 91-27, December 1991, 21pp.

These publications and videotapes may be borrowed for three weeks. However, if you need the materials longer, please contact Susan Earp at the Alaska Transportation Technology Transfer Program at (907) 451-5320.

Please print your name and address below and mail to:

Alaska Transportation Technology Transfer Program
Department of Transportation and Public Facilities
2301 Peger Road M/S 2550
Fairbanks, Alaska 99709-6394

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Organization: _____ Division: _____
Address: _____
City: _____ State: _____ Zip: _____ Phone: _____

For More Information

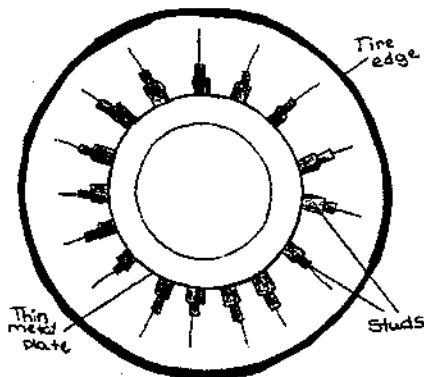
For back issues of our newsletter and inserts, or to get on our mailing list, write: Publications, Transportation Technology Transfer Program, DOT&PF, 2301 Peger Road, M/S 2552, Fairbanks, AK 99709-5316. For more information, you can also call (907) 474-2484.

Retractable Studded Tires

Second Place Winner in National Science Competition

They won't be old enough to drive for at least another four years, but that didn't stop them from coming up with an ingenious way to save highway agencies and car owners big bucks.

Sixth-graders Hannah Hawkins, Alexandra Foote-Jones, Nikki Cuddy, and Rebecca Lipke-Sunberg of Rogers Park School in Anchorage, Alaska, have come up with futuristic technology capable of completely eliminating seasonal tire changeover costs, and reducing road rut repairs and car accidents. Their idea: a tire with retractable studs that would be extended only when needed.



***Retractable Studded Tire Concept**

The studs would protrude through the surface of the tire from telescopic tubes and would work either automatically, with the help of special sensors, or manually with a flip of a switch, according to Lipke-Sunberg.

This idea would not only drastically reduce ruts in the roads (Anchorage alone spends \$3 million per year on repairing ruts that officials say are caused by studs), but would also reduce the wearing out of studs before the tire wore out, the students said.

Having a year-round tire with retractable studs would also eliminate motorists' dread of ex-

pensive seasonal tire changeovers. And, an envisioned low retail price of the tires, and the convenience of using the traction-providers on-the-fly, would also encourage the use of studs and would increase safety, the all-girl group hypothesized.



For their innovative retractable studded tire idea, these Alaskan students won an impressive second place in a national competition of 16,000 student participants this spring. The Toshiba/National Science Teachers Association Exploration Competition, which asked students nationwide to research what a form of existing technology might be like in 20 years, received more than 4,000 entries from the kindergarten through high school grade levels.

Hawkins, the team's leader, said they joined the competition as an alternative to doing a science project for their class, because they thought it would be "the easy way out."

Hawkins admitted, "we thought the Toshiba/NSTA competition seemed easier and chose it instead. Boy, were we wrong!"

However, despite the hard work, the group is glad they entered the Toshiba/NSTA competition, added Hawkins. Perhaps it was the prizes they received that changed their minds about the experience.

As finalists, each member of the Alaskan sixth-grade team received \$5,000 in savings bonds and an all-expense-paid trip to



Washington, D.C., last month with their teacher, Jan Flanders, and community advisor and engineer, Susan Hawkins.

When asked what the girls were going to do with the savings bond, which doesn't mature for 12 years, responses ranged from buying new cars, to putting it toward education.



"I'm going to save it to help pay for me to go to college and medical school," said Rebecca Lipke-Sundberg, an aspiring radiologist.

"Maybe in graduate school I can put a \$5,000 down deposit on a car," Hawkins said.

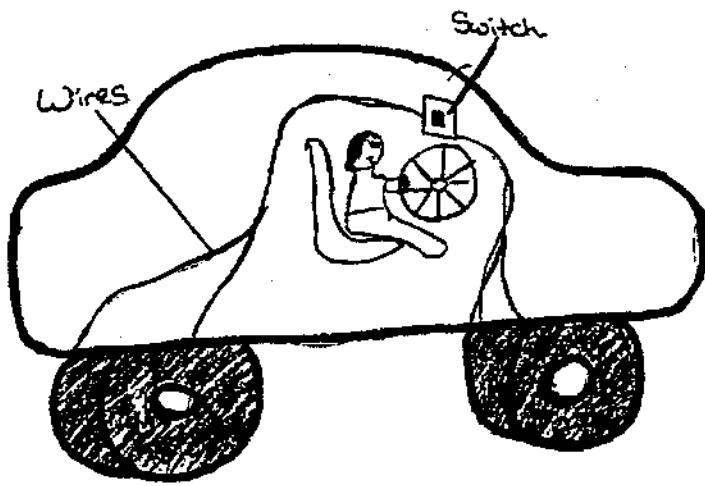


Hawkins, who wants to be an Olympic skier, came up with the idea for the "Tire of Tomorrow" by overhearing a parent's dismay about the costs of having seasonal tires changed for nearly \$40 each time.

"Mom was complaining about it...and it like came to me!" Hawkins said.

Hawkins' idea sparked the curiosity of Lipke-Sundberg who went to work developing how the retractable studs would work.

"My mom's car has a retractable aerial that works automat-



***Switching Mechanism for Retractable Studded Tires**

ically by pressing a button," Lipke-Sundberg said of how she got the idea.



Then the entire group went to work seeking out professionals in the engineering, transportation and safety fields. Their final presentation included an eight page report and a short video. The report and video each focused on the importance of studded tires, alternatives to studded tires, the negative aspects of using studded tires, the history of the tire, and their idea for a new studded tire.

The five minute video also included interviews, a trip through the Alaska Transportation Museum, cartoons and detailed diagrams.

"We put a lot of work into the project and we all worked well together," Lipke-Sundberg said of her team members. "We each have special talents and we put them together to create a good project."



"I knew we had worked as hard as we could on the project, and I

thought that the judges would be able to see that in our entries," said Cuddy, who wants to be a pediatrician. "I was still surprised when they told us that we had won second place!" she added.

Even though they were so successful in the competition, the young inventors realized that although their idea for a tire with retractable studs is a good invention, the technology to create such a tire does not exist today. Foote-Jones, who has plans to be a marine biologist, thinks the students should see their project through to a finished product, however.



"She believes that we should continue with our project and make this tire work," said Hawkins of Foote-Jones who is vacationing with her family in Scotland. "In 20 years, you'll probably be zipping around town in a car that has on retractable studded tires," Hawkins added.

***Graphics of Retractable Studded Tire Concepts courtesy of the Sixth Grade Retractable Studded Tire Group.**

Americans with Disabilities Act (ADA)

ADA Definitions

With the passage of the Americans with Disabilities Act (ADA), transportation agencies are working to comply with the new regulations. One question that has been raised is who is protected under the ADA. The ADA has determined that anyone with a disability shall be protected. Disability is defined as an individual with a physical or mental impairment that substantially limits one or more of the major life activities of such an individual. However, this definition is vague in that it left the term of "physical and mental impairment" open to interpretation.

In the Final Rule of the ADA, definitions for physical and mental impairments were included to specify individuals who would be protected. The act states that any physiological disorder including disfigurement or the anatomical loss affecting the neurological; musculoskeletal; special sense organs; respiratory, including speech organs; cardiovascular; reproductive; digestive; genitourinary; hemic and lymphatic; skin or endocrine body systems are classified as physical or mental impairments. Other impairments also include mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities.

The ADA has also specified other contagious and non-contagious diseases or conditions as physical or mental

impairments. These diseases and conditions include orthopedic, visual, speech and hearing impairments, cerebral palsy, epilepsy, muscular dystrophy, multiple sclerosis, cancer, heart disease, diabetes, HIV, tuberculosis, drug addiction and alcoholism. The degree to which these impairments affect a person's "major life activities" can determine whether an individual is protected under the ADA.

According to ADA, the mere presence of one of the diseases or conditions listed does not necessarily qualify one for ADA protection. The physical and mental impairments must be present in order for the individual to qualify as disabled. Furthermore, these impairments would not be valid under the ADA unless they substantially limit one or more of the following functions: caring for one's self, performing manual tasks, walking, seeing, hearing,

speaking, breathing, learning, and work. Definitions of disability and physical and mental impairments do not include homosexuality, bisexuality, or compulsive gambling. Psychoactive substance abuse disorders resulting from the current illegal use of drugs are not included in any definitions as well.

The definitions provided in the ADA have been explicit in stating the types of impairments that qualify as a disability. By defining who is disabled, the act can prohibit the discrimination against any individual with a disability.

From the "Kansas Trans Reporter." ♦



Treat Others As You Would Have Them Treat You

Imagine, for example, that you are an employer giving interviews for a secretarial position. The day has almost ended and you stretch out your arms as you glance over the last applicant's resume in preparation for the interview. But, as you rise to greet the last applicant coming through the door, you notice that the person is blind.

What should you do? Do you shake the person's hand? Do you help them to a chair? Should you pet the dog? And, although the person's resume reflects a highly qualified secretary, you have doubts about hiring this person because of their disability.

A situation such as this can cause anxiety not only for the disabled person applying for the job, but also

for the employer. 'How should I treat a person with disability,' is a common question many people ask themselves when confronted with a



disabled person. The answer is easy: as you would anyone else. As the employer of the above hypothetical situation, this means introducing yourself to the blind job

candidate and treating the person with professional courtesy and respect—as you would anyone else.

What the Law Says:

Title I of the Americans with Disability Act prohibits discriminating against qualified persons who are applying for employment because they are disabled. This does not mean that people with disabilities should be given preferential treatment. It simply means that employers need to base their employment decisions on the ability of the person to do the essential functions of the job, not on the persons' disability or limitations.

The Employer's Part:

It is important for the employer to clearly define the essential functions of the job at the outset. The essential functions are the individual tasks that actually make up the job. These are to be distinguished from marginal functions. As you look at each of the tasks, ask yourself whether it is a basic, necessary and integral part of the job (essential function), or a peripheral, incidental or small part of the job (marginal function). You do not have to hire someone who cannot do the essential functions with or without a reasonable accommodation, but you can be sued if you do not hire a person because they cannot perform the marginal functions.

As an employer, you are obligated to make reasonable accommodations for someone who is qualified to work with that accommodation. ADA also says that an employer cannot turn down a job applicant or deny other employment

opportunities, such as a promotion, because of the need to make an accommodation. If the accommodation poses an undue hardship on the company, however, the employer is not required to make the accommodation. What constitutes an undue hardship is determined by the nature of the accommodation, the overall financial resources of the business and the impact of the accommodation on it. Some types of reasonable accommodations included building or installing wheelchair ramps, restructuring the job description, modifying work schedules, and acquiring or modifying equipment.

Etiquette:

If a blind person wants you to direct them to a chair, then do so by giving your arm to the person and leading them to it, or tell them, for example, "the chair is on your right." Don't pet or otherwise distract the dog unless the person offers first.

If you are interviewing a hearing impaired person through a translator, always look at the applicant.

Sit down when talking to people using wheelchairs out of comfort for you and the applicant.

Do not be protective of disabled candidates. Most disabled people are capable adults.

People with disabilities are "disabled," not "handicapped."

People without disabilities are referred to as "non-disabled people," not "normal." (It may be also correct to refer to non-disabled people as "temporarily non-disabled.")

Summary:

The best way to treat disabled people, in any situation, is with the same courtesy and respect as you would other people. The worst way to treat a disabled person is to automatically consider the disability instead of the person for the job, as a partner, co-worker or friend. ♦

Telephone numbers for ADA Information

This list contains the telephone numbers of Federal agencies that are responsible for providing information to the public about ADA, and organizations that have been funded by the Federal government to provide information through staffed information centers.

They are not sources for obtaining legal advice or legal opinions about your rights or responsibilities under the ADA.

Architectural & Transp. Barriers Compliance Board

1-800-872-2253 (voice & TDD)

Equal Employment Opportunity Commission

For questions and documents

1-800-669-3362 (voice)

1-800-800-3302 (TDD)

Alternate number for ordering documents

202/663-4264 (voice)

202/663-7110 (TDD)

Federal Communications Commission

For ADA documents and general information

202/632-7260 (voice)

202/632-6999 (TDD)

Job Accommodation Network

1-800-526-7234 (voice & TDD)

Within West Virginia

1-800-526-4698 (voice & TDD)

President's Committee on Employment of People with Disabilities Information Line: ADA Work

1-800-232-9675 (voice & TDD)

U.S. Department of Justice

202/514-0301 (voice)

202/514-0383 (TDD)

U.S. Department of Transportation

Federal Transit Administration

202/366-1656 (voice)

202/366-2979 (TDD)

Office of General Counsel

202/366-9306 (voice)

202/755-7687 (TDD)

Federal Aviation Administration

202/376-6406 (voice)

Local Transit Assistance Program

1-800-527-8279 (voice & TDD)

Adapted from "The Americans with Disabilities Act: Questions and Answers," revised September, 1992, pg. 29-30. ♦

Expo Alaska '93

by Dave Jacoby, Director of the Department of Public Works

For the first time ever, EXPO is coming to Alaska!

EXPO ALASKA '93, hosted by the City of Fairbanks and the T2 Program, will be held at Alaskaland in Fairbanks, September 30 - October 2. Vendors from all over the country are being invited to show their wares. Topics to be discussed include haz-mat spills, wetlands regulations by the Army Corps of Engineers, worker safety, and much more.

We expect displays including the newest single person pothole patcher, and seminars in the newest production lines such as geotextile fabrics. We also hope to have a representative from FHWA to discuss what funding might be available to local and state agencies.

This is going to be an exciting three-day event. Your attendance is encouraged, and I hope to see representation from every city, borough and DOT&PF office in the state. ♦

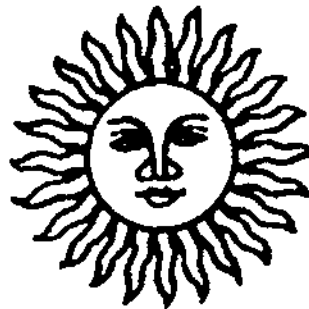
Do you stand a high risk of contracting skin cancer?

Sometimes the only thing that keeps us going through Alaska's cold and dark months, is the light at the end of the tunnel — those long sunny days of summer. If you work road maintenance or construction, then few people know better than you just how sunny and hot those summer months can be.

You are out there every day and are constantly exposed to the rays of the sun. It is hot, hard work and you may be tempted to dress in short sleeved shirts or, if you are male, take your shirt off. Hats usually get tossed in the back of the truck as well. But, beware! There is no such thing as a safe tan, according to the American Academy of Dermatology, and other experts warn that today's rays can develop into wrinkles, cracking of the skin, and life-threatening skin cancer.

If you have to be in the sun like our maintenance and construction crews do, experts advise:

- * choose a sunscreen with a protection factor (SPF) of at least 15 which will block out both UVA and UVB rays. People with light complexions should choose at least SPF 15 and blonds and



redheads at least a 30. Apply liberally, at least 15 minutes before you go out and reapply every two hours.

- * protect your lips with a balm that says it contains sunscreen (balms without sunscreen can increase the

potential for your lips to burn) and protect your eyes with sunglasses which will filter out both UVA and UVB rays.

- * for the best protection, wear long-sleeved shirts, pants and a brimmed hat.
- * keep in mind that staying out of the midday sun (during the two hours around high noon) will decrease your skin's UV exposure by 50 percent.

Examine your skin monthly. Pay particular attention to changes in size, color, shape or thickness of moles, birthmarks or other irregularities. Report these and any unusual symptoms to your physician.

Adapted for Alaska from "Oregon Roads Newsletter," spring 1993, number 34. ♦

ITE Clearinghouse Bulletin Board

Now traffic engineering resources are available in two convenient forms: the Urban Traffic Engineering Clearinghouse and the Electronic Bulletin Board System (ITE BBS).

The clearinghouse provides information on transportation-related technical material for a broad range of urban traffic engineering subjects and can be accessed by calling (202) 554-8050 and asking for the "ITE Clearinghouse." Like the clearinghouse, ITE BBS

provides information on a variety of topics related to urban traffic engineering, but is available electronically.

The ITE BBS can be accessed at (800) 982-4683 or (202) 863-5487 with a microcomputer and a modem. ♦



1993 Alaska Transportation Forum

This year's Alaska Transportation Forum, held May 20-21 on the University of Alaska Fairbanks campus, focused on topics of major concern to anyone involved in the transportation industry: the safety of humans and the environment.

Contents of the latest forum, which is put together by the University of Alaska Transportation Center, included presentations by transportation and environmental professionals from around the state on topics such as hazardous waste transportation, using crumb-rubber and glass as materials in Alaska's pavement construction, considerations for public involvement, safety for highway workers and motorists, and logistics of the Exxon Valdez oil-spill clean-up operations. A one-day videotape segment included sessions such as geometric design at intersections, design resources and intersection safety improvements as well.

Keynote speaker John Corcoran, of Manhole Adjusting, Inc. of California, presented a video and short discussion on the benefits of crumb-rubber asphalt.



Keynote Speaker John Corcoran

According to Corcoran—president and CEO of MAI, a leader in asphalt-rubber—crumb rubber pavement, made from discarded, then chopped up tires, was not originally a result of environmental regulations, as many people think. Although the method does help rid

Americans of the 280 million tires discarded annually, the idea actually stemmed from engineers' research into improving pavement.

Engineers have found that while crumb rubber is more costly to use than virgin asphalt materials, tire rubber contains desirable materials to make pavement last longer, such as UV inhibitors to prevent deterioration caused by the sun.

Corcoran says crumb rubber is flexible and resists cracking caused by wheel load pressures and temperature changes. Crumb rubber pavement is also virtually waterproof, and can significantly reduce traffic noise and improve skid resistance, Corcoran added.

Other presentation highlights include a session given by Mike Tinker, Environmental Coordinator for ADOT&PF's Northern Region.

As part of his presentation, Tinker handed out the Northern Region Environmental Section's "Spill Response Card" (included after this article) which is used as a written record of hazardous material spills for the Environmental Section and the Department of Environmental Conservation.

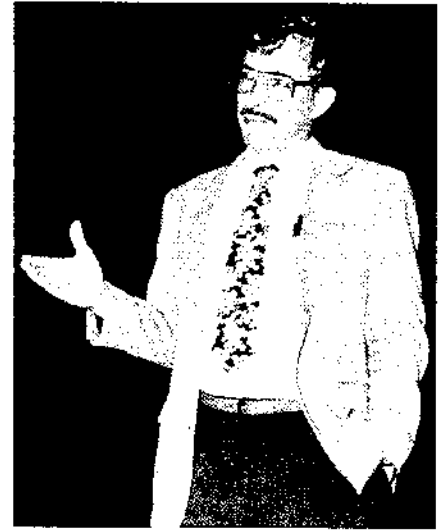
This card is located in every ADOT&PF vehicle in the Northern Region—from cars to heavy equipment—and could easily be adapted to meet the needs of any department or agency dealing with hazardous materials. Note the quick reference numbers for both DEC and the Environmental Section, and easy-to-follow instructions.

Commander Dennis Maguire, federal on-scene coordinator for the Coast Guard, addressed logistical challenges of responding to the Exxon Valdez oil spill. Maguire also gave statistics on how many supplies were used during the spill, and the transportation necessary to get supplies in and out of the area.

Christine Klein, the environmental co-director of Anchorage International Airport, spoke on the Environmental Protection Agency's stormwater regulations and Susan

Todd from UAF's School of Agriculture and Land Resources Management, talked about reasons and methods for getting the public involved in transportation issues as.

Other presenters included Dave Esch of ADOT&PF; J. Leroy Hulse from the University of Alaska Fairbanks' Transportation Research Center; Nadine Winters, special assistant to Mayor Jim Hayes; Robin Salzburg, Alaskans for Litter Prevention and Recycling and Mark Tumeo of UAF's Environmental Technology Laboratory.



Dave Esch, DOT&PF, spoke on "Waste Tire Uses in Alaska"

Of the success of this year's forum, UATC Director, Lutfi Raad, said, "The issues were timely and the participants did a great job of getting their points across." Those in attendance were also pleased with the latest forum.

"I was real impressed," said Janice Wagner, management analyst for DOT. "All of those subjects are subjects we need to be thinking about." Wagner added that she also liked the forum's topics because they were issues that had not been addressed before.

For the future, UATC has plans to increase the forum's attendance and will continue to address timely subjects concerning Alaska. Other plans by UATC for the forum's future include getting the Legislature more involved, Raad said. ♦

Intrusion Alarm

Maintenance workers and supervisors worry about safety continually. And it is no wonder. Sixty highway workers die on the job each year, according to the Federal Highway Administration (FHWA).

Our country's roads and bridges require an ever-increasing amount of maintenance activity and expenditure, and, at the same time, traffic levels continue to escalate. The combination is deadly.



Just how deadly was illustrated by an accident that occurred July 26, 1990, near Sutton, West Virginia. A tractor-trailer collided with two cars stopped for a work zone. The crash killed all eight occupants of the cars. Luckily, no maintenance workers were killed. As a result of the accident, the National Transportation Safety Board (NTSB)

recommended that highway agencies provided audible warning devices—such as a horn—in work zones; and encouraged the use of other safety devices, such as rumble strips, to alert oncoming drivers.

These new measures are necessary because, as motorists encounter more and more work zones, they are becoming “numb” to the various warning signs used by highway agencies for so many years, especially when the work is close to home on the routes they drive “automatically” each day. Another problem is the exponential increase in the number of traffic jams caused by highway work, which makes motorists frustrated and angry. All this spells risk for highway workers.

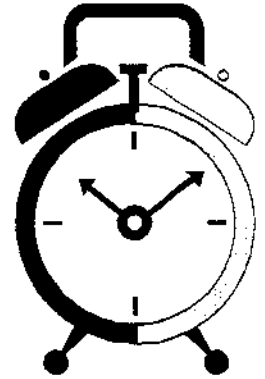
To help make maintenance work safer, the Strategic Highway Research Program (SHRP) conducted a national design competition for new work zone safety devices (Project H-109). Ideas came from private industry, from transportation officials, and, perhaps most importantly, from maintenance workers themselves. Now, after more

than 40 months of development and closed-track testing, many devices are ready for use.

Intrusion Alarm Buys Time for Workers

Of all the new safety devices coming out of SHRP, the Infrared Intrusion Alarm was rated tops by about 35 maintenance workers surveyed in Iowa, Michigan, and Oregon. The alarm works by sounding a loud (120-decibel) siren whenever a vehicle strays into a work zone, giving maintenance workers a four to seven second warning to clear the work area.

Developed by Graham-Migletz Enterprises of Independence, Missouri, the alarm has three components:



- A detector with an infrared “eye;”
- An orange safety cone with a reflective sock; and
- A receiver with a siren.

This mostly solid-state detector weighs in at only 28 pounds. A worker can set it up in seconds. Placed at the edge of the road at the end of the work zone taper, the detector bounces its infrared beam off a reflective strip or sock on an orange safety cone placed on the opposite side of the closed lane. The detector communicates with the siren by radio so no wires are necessary. The siren is placed near maintenance workers. When an errant vehicle enters the closed lane and breaks the beam, the siren sounds. This life-saving device costs about \$4,000.

From “The Northwest Technology Transfer Center Bulletin,” Spring 1993, Number 38. ♦

Work Zone Traffic Safety Tips

1. Utilize a crash truck whenever possible.
2. Make sure the foreman gives a work zone safety talk to the crew at the site and highlights escape routes workers should take if an errant vehicle enters the work zone.
3. Provide the flagman with a warning device such as a whistle or portable air horn to signal when an errant vehicle enters the work zone.
4. Provide each worker with an orange safety vest or require them to wear safety orange suits, sweatshirts or coats.
5. Ask state or local police to routinely visit the work zones to reinforce to the motoring public the need to slow down and exercise caution.
6. At particularly hazardous locations assign an additional worker to assist with traffic control.
7. Constantly review, update and improve your work zone traffic control set-ups.

Reprinted from “Georgia Roads” Technology Transfer Center newsletter, Vol.2, No. 1. ♦

Seat Belt Safety

Statistics prove that your chances of surviving a serious accident and minimizing injury are better when you wear seat belts.

The accompanying photo taken in South Dakota is a good testimonial.

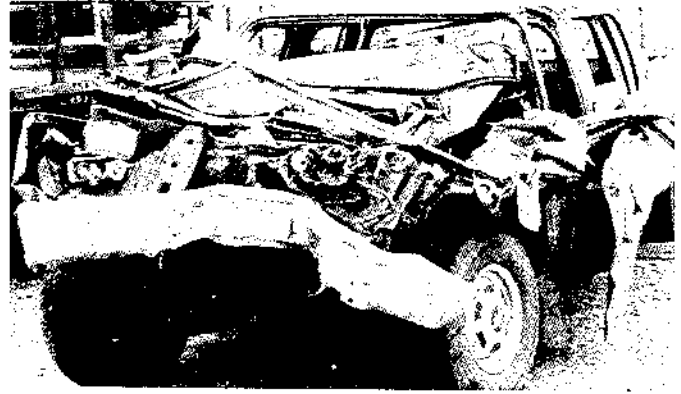
Two South Dakota DOT employees were travelling down a two lane highway in a pick up towing a power broom. They slammed into a loaded tandem truck which had stopped on the highway. They were travelling at approximately 50 to 55 miles per hour. The impact was so great that the pick up went under the truck so far that the truck bed was against the dashboard of the pick up. The tandem truck, with its brakes on, was shoved ahead approximately 30 feet.

Here is the interesting ending. The drivers were both wearing their seat belts and sustained virtually no injury. One driver was pinned in the vehicle, and had to be freed by a local emergency response team, but again, his injuries were minor. They are both now firm believers in the benefit of wearing seat belts.

An interesting footnote is that the power broom sheared the pin which attached it to the pick up, but there

were safety chains attached to the hitch and they were being used. The tail gate was pushed forward about one foot, but the chains kept the broom hitch from coming through the tailgate and possibly injuring the drivers severely. Safety pays!

Adapted from South Dakota Transportation Technology Transfer Service, "The Connection," Spring 1993, vol. 6, no. 1. ♦



Two workers sustained virtually no injury while wearing seat belts.

Safety Belts and Helmet Law Incentives

Twelve million dollars were made available in 1992 for grants to states that passed laws requiring the use of safety belts and motorcycle helmets, the National Highway Traffic Safety Administration (NHTSA) announced.

NHTSA said the grants were being made available under the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, which also provides funding for grants in the 1993 and 1994 fiscal years.



To receive a first-year grant, a state must show it has enacted both safety belt and motorcycle helmet use laws.

About half of the states meet these qualifications. The grant funds will be used for education, training, monitoring and enforcement of the laws.

An additional \$5 million has been made available for conducting special studies on the benefits of safety belt and motorcycle helmet use, NHTSA said.

To continue receiving the grants in the second and third years, a state must show that it has achieved special usage rates. For the second year, a state must have at least a 50 percent safety belt usage rate for front seat occupants and a 70 percent helmet usage rate for all motorcycle riders. For a third year grant, the rates must be at least 70 percent for safety belts and 85 percent for helmets.

The grant funds will be provided on a matching basis, with the state's contribution increasing each year. In the

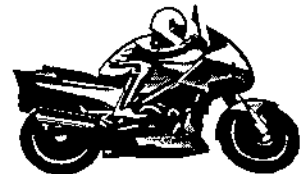
first year, the state must provide a match equal to one-third of the federal funds. In the second year, the state's contribution must equal the federal contribution, and in the third year it must be three times as large.

ISTEA has other provisions to encourage the passage of safety belt and helmet laws, including requiring the transfer of a portion of a state's highway construction funds to the state's highway safety program in fiscal years 1995 and 1996 if the state does not have both belt and helmet laws.

The State of Alaska instituted a safety belt law in January 1992. However, Alaska's highway funds may be affected by this ISTEA provision if a motorcycle helmet law for the state is not put into effect prior to the 1995 fiscal year.

Recently, a mandatory motorcycle helmet bill went through several Legislative committees, but did not complete the processes

necessary to create a law. The law is still an issue, however, and will be brought up during the next Legislative session in January, according to the Legislative Information Office.



Adapted for Alaska from South Dakota Transportation Technology Transfer Service's "The Connection," Spring 1993, vol. 6, no. 1. ♦

Who's Who in Alaska's Transportation

*Spotlight on Jonathan A. Widdis, Chief of Planning,
Manager of Administrative Services, Northern Region DOT&PF, Fairbanks*

T2 Advisory Board Chair, Jonathan Widdis, is a little like the Energizer Bunny™. He's been with ADOT&PF over half of his life and he's 'still going.'

Widdis was born in California, but has lived in Alaska since he was three years old. Raised in Fairbanks, Widdis went to the University of Alaska Fairbanks where he double-majored in English and psychology. While finishing up his degrees, Widdis worked during the summers in Nome for ADOT&PF as a Survey Chainman. After graduating in 1972, Widdis continued working in Nome where he became the Manager of ADOT&PF's Local Service Roads Program, a small local construction operation which designed and built roads throughout the Alaskan bush.

After seven years of service in Nome, a desire to further his education led Widdis to California's Western School of Law in San Diego in 1979. After a year of law school, however, Widdis was not satisfied.

"I realized that just wasn't what I wanted to do," Widdis said.

In the fall of 1980, he returned to his home town of Fairbanks and continued his work for ADOT&PF, this time as the Planner for Western Alaska.

Widdis said working for the then newly established planning branch of ADOT&PF suited his degree in English.

"Planning is really a lot of communicating, translating engineering language and concepts into layman's terms," Widdis said, and added that his non-technical degrees also provide him with a different approach to the technical and jargon-ridden field of transportation.



"I bring an interesting perspective to the job," Widdis said, laughing.

While with the Planning Division, Widdis managed a number of special projects such as the Nome Deepwater Port Construction, a world-class project involving state-of-the-art port engineering and technology.

As the planner for the Western Region, Widdis also trained in such areas as construction contract law, airport planning, and urban transportation planning to broaden his technical transportation knowledge. No technical training, however, could provide Widdis with the prioritizing skills he would need at his current job as Chief of Planning for ADOT&PF.

Being the Chief of the Planning Office includes working with the Legislature and with urban and rural communities from Nome, Kotzebue, and Barrow to Valdez, Cordova, and Fairbanks in order to reach a common goal of improved transportation. Widdis, who became Chief late in 1992, commented that acting as a liaison between these many different groups, and trying to balance their very different needs and desires, has taught him a lot.

"I have found that good transportation is important to every single person in Alaska, but the meaning of good transportation varies considerably," Widdis said of the difficulties which arise in trying to please everyone.

"The hardest part is finding the time to give the proper attention to things," Widdis said. "There aren't enough hours in the day."

It's no wonder Widdis has such a busy schedule. He also serves as Manager of Administrative Services for ADOT&PF, which includes the Finance and Procurement Offices.

Widdis' spare time is spent with his wife, Anna, and their cat. He is also a curling enthusiast who wants to win a world championship someday, loves camping and fishing and enjoys time with his parents at their home 50 miles up the Salcha River.

Other loves of Widdis' include gardening and landscaping in his yard at home.



1992 T2 CALENDAR OF EVENTS

To publicize an event in our calendar, contact us at (907) 451-5320.

| JULY | | | | | | |
|------|----|----|----|----|----|----|
| S | M | T | W | T | F | S |
| | | | | 1 | 2 | 3 |
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| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |

See below for locations.

Training see middle column.

| SEPTEMBER | | | | | | |
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| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | | |

Jul 19-26: Research Applications Seminars, three sites. Contact the T2 Office 907/451-5320.

Jul 25-28: Pacific Rim Trans Tech Conference, Seattle, WA. 206/753-6014.

Jul 29: FHWA Region 10 meeting.

Aug 1-4: National LTAP Conference, Mayaguez, Puerto Rico.

Aug 23-24: Technical Writing for Transportation Professionals. Contact T2 Office, 907/451-5320.

Sep 7-10: 19th Northwest Geotechnical Workshop, Anchorage. Dan Pavey, 907/269-6236.

Sep 19-22: 63rd Annual ITE Meeting, The Hague, The Netherlands. Contact ITE Headquarters at 202/554-8050.

Sep 29-Oct 1: NHI #14205 Project Development and Environmental Documentation, Juneau. Contact Jim Bennett, 907/451-5322.

Sep 30-Oct 2: Expo Alaska '93. Alaskaland, Fairbanks. Contact T2 Office at 907/451-5320.

Oct 19-22: NHI #14207 Fundamentals and Abatement of Highway Traffic Noise, Anchorage. Contact Jim Bennett, 907/451-5322.

Oct 26-29: NHI #13401 Principles of Writing Highway Construction Specifications, Anchorage. Contact Jim Bennett, 907/451-5322.

| AUGUST | | | | | | |
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| 29 | 30 | 31 | | | | |

Aug 25-26: FHWA Demo Project 93 Traffic Control Equipment and Software, Anchorage. Contact Sharon at T2 Office 907/451-5323.

| OCTOBER | | | | | | |
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| 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | | | | | | |

Meetings Around Alaska

Alaska Society of Civil Engineers - Anchorage: Monthly, 3rd Tues., noon, Northern Lights Inn. Fairbanks: Monthly, 3rd Fri., noon, Captain Bartlett Inn. Juneau: Monthly, except June - August, 2nd Wed., noon, Breakwater Inn.

Alaska Society of Professional Engineers - Fairbanks: Monthly, 1st Fri., noon, Captain Bartlett Inn.

Alaska Society of Professional Land Surveyors - Anchorage: Monthly, 3rd Tues., noon, Executive Cafeteria Federal Building. Fairbanks: Monthly, 4th Tues., noon, Sunset Inn.

Institute of Transportation Engineers - Anchorage: Monthly, 3rd Thur., Sourdough Mining Company.

International Right of Way Association - Anchorage: Sourdough Chapter 49: Monthly, except July & December, 3rd Thur., noon, West Coast International Inn. Fairbanks: Arctic Trails Chapter 71: Monthly, except December, 2nd Wed., noon, TBA. Juneau: Totem Chapter 59: Monthly, 1st Wed., noon, Mike's Place in Douglas.

American Public Works Association: September 24 and October 29, noon, West Coast International Inn, Sandi McWilliams, (907) 279-1122.

International Conference of Building Officials - Fairbanks: Alaska Northern Chapter: Monthly, 1st Wed., noon, Zach's at Sophie Station, 459-6720.

American Water Resources Association - Alaska Section, Northern Region: Monthly, 3rd Wed., noon (Brown Bag Lunch), Room 531 Duckering, University of Alaska Fairbanks. Contact Larry Hinzman, 474-7331, for information.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
OIL AND HAZARDOUS MATERIALS (SPILL) INCIDENT NOTIFICATION

Report all releases to the Northern Region Environmental Section at 451-2238.

If the release is in excess, or of a substance that cannot be managed with your available resources, contact the Alaska Department of Environmental Conservation at: 1-800-478-9300, 24 hours a day.

Send completed forms to: Environmental Section
 2301 Peger Road
 Fairbanks, Alaska 99709-5316

Person Reporting

Telephone Number

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Responsible Party (Company Name, if other than DOT&PF) Other Parties Notified

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Date/Time Occurred or Discovered and Name of Person who discovered it:

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INCIDENT DETAILS

Location

Product

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Quantity Spilled

Quantity Contained

Quantity Recovered

Quantity Disposed

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*Source of Spill**Surface Type (gravel pad, water, etc.)* *Surface Area (sq.ft.)**Cause of Spill***STATUS OF CLEANUP***Cleanup Actions**Disposal Methods**Environmental Damages**Present Condition of Area*

Yes

No

Site Remediation Actions (ground, building, etc.)

For Environmental Section Use

Logged by:
Date/Time DEC Appraised:

DOT&PF Spill Number: